1 602 694

PATENT SPECIFICATION

(11) 1 602 694

(21) Application No. 14874/78 (22) Filed 15 April 1978
(44) Complete Specification published 11 Nov. 1981
(51) INT CL³ B65D 43/03
(52) Index at acceptance
B8P L6
(72) Inventor JAMES ARTHUR DICK

(19)

(54) NESTABLE CONTAINERS

(71) We, KEYES HUNTSMAN LIMITED, a British Company, of 1, Pikelaw Place, West Pimbo, Skelmersdale, Lancashire, WN8 9PP, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to a nestable container primarily intended as a food container.

Such containers are particularly useful to catering establishments offering "take-away" meals.

It is an object of the present invention to provide a container which is nestable, and is, therefore, convenient to pack, transport and store, and which can be assembled with a like container to form a box enclosure for a meal portion.

There is provided by the present invention a nestable container comprising a base and side wall portions forming an opening at the end of the side wall portions remote from the base; a first side wall portion of the container at the remote end thereof having an outwardly directed tongue, and a second, oppositely disposed, side wall portion at the remote end thereof having an outwardly directed extension in which a slot is formed and comprising a raised part; the container being such that, when the container is inverted on another like container in a position rotated 180° in relation to the other of the containers, the tongue of each of the two containers can be entered into the slot of the other of the two containers with the raised part of the outwardly directed extension of each of the two containers locating thereon the remote end of said first wall portion of the other of the two containers.

The container side wall portions may be of a greater height at one side of a transverse plane of the container passing equidistantly between the first and second side wall portions than at the other side of that plane. Preferably the first side wall portion lies on the one side of the transverse plane; and the outward extension may comprise a lip which delineates the outwardly directed side of the slot.

Preferably the extension is constituted by a portion of the flat of an outward step formed in the container to pass round the portion of the periphery thereof lying on the side of the plane containing the extension; the step comprising the flat, and, delimiting the outward reach of the step, said raised portion; and it is also preferred that the tongue is constituted as part of an outwardly directed flange extending round the portion of the periphery of the container lying on the side of the plane containing the tongue, and formed so that, when the two containers are assembled to form the box, the flange of one of the containers lies on the flat of the step of the other of the containers and is located in place thereon by the raised portion of the step. Preferably the upstanding portion of the step is constituted by the abovementioned lip extended to pass round the entire periphery of the step.

In order to avoid an abrupt transition at each end of said transverse plane of the container passing equidistantly between the first and second side wall portions, between the flange and the outward step of the container, a transition may be provided in the form of a ramp surface; the two ramp surfaces thus provided having the same slope and direction.

The side wall portions of the container may form a generally rectangular structure, in which case the first and second side wall portions may constitute the end walls of the container, and the height of any side wall of the container may be, and preferably is, less than the width of the base thereof.

The container may be formed so that, when the two containers have been assembled to form the box, a gap is left between side wall portions of the containers at each of two oppositely disposed lateral sides of the box with the gaps preferably lying oppositely disposed and to lie on an axis passing equidistantly between oppositely disposed walls of the box

respectively adjacent those in which the gaps are formed.

The container may be made of a flexible material, in which case the container may be formed with the tongue and slot such that, when the two containers are assembled to form the box, the engagement of the respective tongues and slots causes the two containers to flex and form the gaps. Accordingly, in the above-mentioned embodiment, the tongue and the extension may be formed to lie in substantially parallel planes whereby the insertion of the tongues in the respective slots in assembling the two containers to form the box, causes the flexing of the two containers to form the gaps.

The material of the container may be a heat-insulating one and it may consist of an expanded plastics material such as expanded polystyrene which is known to be a material having good-heat insulating properties. The container may be produced by molding or thermoforming.

An embodiment of the invention will now be described, by way of Example only, with reference to the accompanying Drawings, the sole figure of which shows two containers of the embodiment in an orientation in relation to one another in which they may be assembled together to form a box.

Referring to the sole figure and in particular to the lower container shown therein, and designated A, the container is of generally rectangular form and comprises a base wall 1 and a side wall 2 providing lateral wall portions 3 and 6 and end wall portions 4 and 5. The container is unsymmetrical about a transverse plane thereof passing equidistantly between the endwall portions 4 and 5; the parts of lateral wall portions 3 and 6 lying to the left of that plane as the container is seen in the sole figure and end wall portion 5 being of lesser height than the parts of lateral wall portions 3 and 6 to the right of the plane as the container is viewed in the sole figure and end wall portion 4. The former parts of wall portions 3 and 6 and end wall portion 5 are terminated at their upper end by an outward step 7 passing round the portion of the periphery of the container on the left hand side of the plane as the container is viewed in the sole figure; the step comprising a flat 8 and an upstanding wall portion constituted by a lip 9 delimiting the outward reach of the step. The flat of the step of end wall portion 5 forms an outwardly directed extension thereof in which a recess is formed; the outwardly directed aspect of the recess being closed by the respective portion of the lip 9. The lower edge of the lip stands with a clearance above the general plane of the recess so that together with the edge of the recess, it forms a slot 10 having a dimension, determined by said clearance, in a direction normal to the base wall.

The parts of lateral wall portions 3 and 6 lying to the right of said plane as the container is viewed in the sole figure and end wall portion 4, are terminated at their upper end by an outwardly directed flange 11 of a section substantially equal in dimension to said clearance, passing round the portion of the periphery of the container on the respective side of that plane. The part of the flange extending from the upper end of end wall portion 4 is of arcuate form and constitutes a tongue, indicated at 12, to engage with a slot 10 of another container as will be explained hereinbelow. To facilitate this, the section of the tongue may be made thinner than that of flange 11 generally, and this could be accomplished with certain materials such as an expanded plastics, by compression of the tongue. The transition between the step of the container and the outwardly directed flange at each side thereof is in the form of a ramp surface 13 having the same slope and direction at each side of the container. This avoids abrupt transitions between the step 7 and the flange 11, the advantage of which will be made apparent hereinbelow.

The container as described above may be used along with another one of the containers, as shown by container B in the sole figure, to form a box to enclose, for instance, a food portion. For this purpose, container B is inverted on container A to assume an orientation in which it has been rotated through 180 degrees in relation to container A. This enables the tongue 12 of one container to be engaged with the slot 10 of the other container, thus locking the two containers together.

The container as illustrated is made of a flexible material, in fact, in this instance, expanded polystyrene; and, since the tongue 12 and the slot 10 of a container are formed in substantially parallel planes, it is necessary in engaging the slots and tongues of the two containers to apply a slight end on compression to the containers to permit a tongue to enter a slot. This causes the two containers to flex slightly and creates a gap between the two containers at the region of the ramp surfaces. These gaps permit any steam issuing from the food portion contained in the box to escape therefrom. The advantage of the ramp surfaces in assembling the box, is that they facilitate the relative positioning of the two containers.

When the two containers have been assembled, the flange 11 of one container sits on the flat 8 of the step of the other container and is located thereon by the lip 9 of the step. Thus, once the interengaging formations of the two containers constituted

respectively by the tongue 12 and the slot 10 are engaged, the two containers are held against relative displacement not merely by the engagement of the respective tongues and slots but also by the location of the flange 11 of each container on the flat of the step of the other container.

Further, the side wall of the container slopes outwardly from the base and, as a result, a plurality of the containers can be nested one within the other.

Since the container is made of a heat-insulating material, the box formed by assembly of the two containers, provides not merely an enclosure for a food portion, but one which assists in maintaining the temperature of the food whether the food be hot or cold.

Expanded polystyrene is an expanded plastics material and it may be practicable to use other expanded plastics materials as an alternative to expanded polystyrene.

It will be understood that the container need not be constructed to provide the gaps in the box, and that if it is so constructed the gaps could be provided by means of shaping the lateral wall of the container, for instance, by means of a cut out, or simply by providing perforations.

The container as illustrated may be produced as a molding or by thermoforming.

WHAT WE CLAIM IS:—

1. A nestable container comprising a base and side wall portions forming an opening at the end of the side wall portions remote from the base; a first side wall portion of the container at the remote end thereof having an outwardly directed tongue, and a second, oppositely disposed, side wall portion at the remote end thereof having an outwardly directed extension in which a slot is formed and comprising a raised part; the container being such that, when the container is inverted on another like container in a position rotated 180° in relation to the other of the containers, the tongue of each of the two containers can be entered into the slot of the other of the two containers with the raised part of the outwardly directed extension of each of the two containers locating thereon the remote end of said first wall portion of the other of the two containers.

2. A nestable container according to claim 1, wherein the container side wall portions are of a greater height at one side of a transverse plane of the container passing equidistantly between said first and second side wall portions than at the other side of that plane.

3. A container according to claim 2, wherein said first side wall portion lies on said one side of said transverse plane.

4. A container according to claim 2 or 3, wherein said outward extension comprises a lip which delineates the outwardly directed side of the slot.

5. A container according to any of preceding claims 2 to 4, wherein said extension is constituted by a portion of the flat of an outward step formed in the container to pass round the portion of the periphery thereof lying on the side of said plane containing said extension; the step comprising said flat and, de-limiting the outward reach of the step, said raised portion; and wherein said tongue is part of, an outwardly directed flange extending round the portion of the periphery of the container lying on the side of said plane containing said tongue, and formed so that, when the two containers are assembled to form the box, the flange of one of the containers lies on the flat of the step of the other of the containers and is located in place thereon by said raised portion of the step.

6. A container according to claims 4 and 5, wherein said lip extends around the entire periphery of the step and constitutes said raised portion thereof.

7. A container according to claim 5 or 6, wherein, in order to avoid an abrupt transition at each end of said transverse plane transverse axis of the container passing equidistantly between said first and second wall portions, between the flange and the outward step of the container, a transition is provided in the form of a ramp surface; the two ramp surfaces thus provided having the same slope and direction.

8. A container according to any of the preceding claims, wherein the side wall portions of the container form a generally rectangular structure.

9. A container according to claim 8, wherein the height of any side wall of the container is less than the width of the base thereof.

10. A container according to claim 8 or 9, wherein said first and second side wall portions constitute the ends wall of the rectangular container.

11. A container according to any of the preceding claims, wherein the container consists of a flexible material.

12. A container according to any of the preceding claims, wherein the container is formed so that, when the two containers have been assembled to form the box, a gap is left between the side wall portions of the containers at each of two oppositely disposed lateral sides of the box.

13. A container according to claim 12, wherein the two gaps provided lie oppositely disposed.

14. A container according to claim 13, wherein the two gaps provided lie on an axis passing equidistantly between oppositely disposed walls of the box respectively adjacent those in which the gaps are formed.

15. A container according to claim 11 and any of claims 12 to 14, wherein the container is formed with the tongue and slot such that, when the two containers are assembled to form the box, the engagement of the respective tongues on the slots causes the two containers to flex and form the gaps.

16. A container according to 15, wherein said tongue and said outward extension are formed to lie in substantially parallel planes whereby the insertion of the tongues in the respective slots in assembling the two containers to form the box, causes the flexing of the two containers to form the gaps.

17. A container according to any of the preceding claims, wherein the container is made of a heat insulating material.

18. A container according to any of the preceding claims, wherein the material is an expanded plastics material.

19. A container according to claim 17 and 18, wherein the material is expanded polystyrene.

20. A container according to any of the preceding claims, wherein the container is a moulded or a thermoformed one.

21. A nestable container substantially as hereinbefore described with reference to the accompanying drawings.

W. P. THOMPSON & CO.,
Coopers Building,
Church Street,
Liverpool L1 3AB,
Chartered Patent Agents.

Printed for Her Majesty's Stationery Office, by the Courier Press, Leamington Spa, 1981
Published by The Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.

1602694 COMPLETE SPECIFICATION
1 SHEET *This drawing is a reproduction of the Original on a reduced scale*